

# Dual Use Material Developers Panel



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# Evolution of Ground Robotics in War

## 2004

**162 systems**

- No single vendor could produce 162
- 5 vendors, multiple configurations
- Joint effort, EOD focused

## 2005

**1800 systems**

- Robot's proven ability to save lives
- Expansion beyond EOD mission (Countermines, Security)
- MOAs w/ AMC and REF

## 2006

**4000 systems**

- Engineers and Infantry
- Route clearance, Explosive detection & Weaponization development

## 2007

**5000 systems**

- Special Forces robot applications assessed
- Route clearance, Explosive detection & Weaponization on battlefield

## 2008

**6000 systems**

- Maneuver elements
- Range extension
- CBRNE detection
- Persistent surveillance
- RC HMMWV
- More capable payloads

## 2009

**7000 systems**

- Smaller platforms
- Enhanced battery life
- Enhanced commonality
- Remote deploy
- More capable payloads

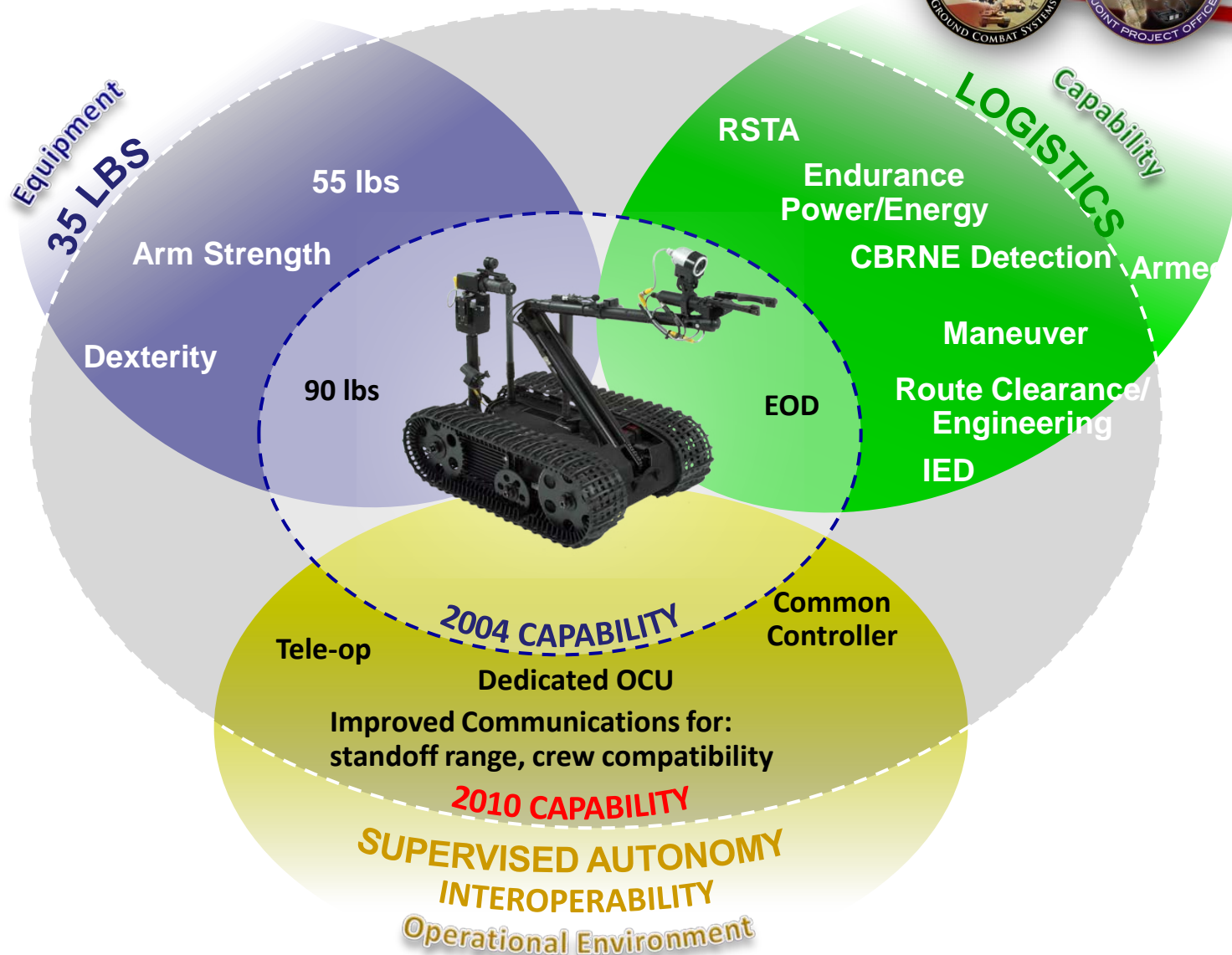
## Future

- Interop
- 'Plug and play' capabilities
- Limited autonomy
- Weaponization
- Increased agility & dexterity

Sustainment, Modernization, Interoperability and Modularity



# Robotic Modernization



**Enhancing Warfighter Capabilities**



# Joint Robotic Repair and Fielding JRRF



## BACKGROUND

- The Joint Robotics Repair and Fielding (JRRF) activity was established in mid 2004 to provide maintenance, supply and training for all Joint Service Non Standard Equipment Robotic systems.

## MISSION

- Provide in-Theater Support for Joint Service Theater Provided Equipment (TPE) Ground Robots. Serve as Single "Belly Button" "one-stop-shop" for fielding, sustainment, training, assessment and total asset accountability for all robotic systems, including Iraq and Afghanistan.

## SUPPORT

- Current JRRF operations
- Embedded repair teams to remote units
- Pre-deployment support capability at Combined Training Centers
- 13 JRRF detachments world wide



**Training, Sustainment, Assessment, and Accountability**



# RS JPO Systems

- Based primarily on ONS / JUONS requirements
- Commercial-off-the-shelf / modified-off-the-shelf
  - Commercial radios
  - Commercial components
  - Non MIL-STD
  - Obsolescence
  - Configuration control
- Procured under 'Rapid Acquisition'
  - REF and JIEDDO lead
- Provide immediate capabilities
  - 70 to 80% solutions

# Dual Use Technologies



- Obstacle detection & avoidance
  - Military: pedestrians, terrain and man-made obstacles
  - Civilian: automobile safety technologies – active cruise control
- Autonomous navigation
  - Military: resupply, dynamic path planning
  - Civilian: automobile safety technologies – active cruise control
- Increased communication range
  - Military: increased standoff
  - Civilian: command post (DHS/1<sup>st</sup> Responders), wireless networks
- Multi robot control
  - Military: one controller/many robots, manning levels
  - Civilian: warehousing
- Interoperability
  - Military: agile mission response
  - Civilian: USB ports, iPhone
- Improved battery technologies / fuel cells
  - Military: longer life, reduced soldier load
  - Civilian: fossil fuel dependence